

Article

Aggression motivation in prisoners: Association with cognitive and developmental differences

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Abstract

The study investigates aggression motivation and the cognitive and developmental profiles of aggressors. Participants were 210 adult male prisoners, in the UK. All completed measures of aggression motivation, cognitive schemas, aggression normative beliefs, and attachment. Developmental history was also examined. It was predicted that aggression motivation would comprise several motives, in keeping with previous research (i.e. protection, social recognition, positive outcome and pleasure motives). Disciplinary parenting practice was predicted to associate with reactive aggression and permissive parenting practice with proactive aggression. Related to this, distinct attachment styles were also expected. Cognitive schemas and normative beliefs were predicted to be associated with aggression type. Results indicated that aggression motives comprised three factors; pleasure, protection and positive social outcome. There was thus some similarity to prior research but not complete consistency. Developmentally, reactive types reported more problematic childhood behaviours. Mixed motive types disclosed higher rates of positive childhood experiences, purposeful peer relationships, coupled with elements of severe parental discipline. Reactive and mixed types reported increased rates of fearful-avoidant childhood attachment. Mixed types were also found to have more normative aggression beliefs. Associations were established with maladaptive schemas; the proactive aggressor to an abandonment schema, reactive to a mistrust schema, and other schemas with mixed motive aggressors. Results are discussed with reference to theoretical and clinical implications.

Key words: aggression motivation; prisoners; normative beliefs; cognitive schemas; developmental.

Introduction

Familial and developmental factors play a pivotal role in the aetiology of individual differences in expressed aggression (e.g. Lee, Altschul & Gershoff, 2015; Vitaro & Brendgen, 2005; Tremblay, 2018). To further our understanding of human aggression, focused attention on underlying motives has been emphasised (Ireland, 2018, Ohlsson & Ireland, 2011; Runions, Salmivalli, Shaw, Burns, & Cross, 2018). Consequently, differing types of aggression motives have been recognised; *proactive* and *reactive*; reactive represents emotionally driven aggression and proactive more planned (Allen & Anderson, 2017). There is a recognised cross-over between these motivations, referred to as the ‘mixed-motive’ aggressor (Allen & Anderson, 2017; Raine *et al.*, 2006).

Motivations for aggression do, however, vary (Lewis & Ireland, 2019; Ohlsson & Ireland, 2011; Runions *et al.*, 2018). Previous research has identified four main aggression motives; protection, social recognition, positive outcome and pleasure in an adult male forensic sample (Ohlsson & Ireland, 2011), with more recent research in general (student) samples outlining motivations to include rage, revenge, reward and recognition (Runions *et al.*, 2018). Collectively, this suggests a simplistic *proactive-reactive* dichotomy is perhaps rendered inadequate for describing aggression motivation, thus echoing concerns of previous researchers exploring this dichotomy in general samples (Bushman & Anderson, 2001; Allen & Anderson, 2017).

Social Interactionist Theory (SIT: Tedeschi & Felson, 1994) and the Theory of Planned Behaviour (TPB: Ajzen, 1991) are valuable to note at this juncture as they seek to establish clear links between motivation and behaviour. SIT describes how aggression, results from decisions to achieve rewarding social goals, which may include controlling others, restoring justice for perceived wrongs, or to protect one’s social or personal identity (Tedeschi & Felson, 1994). The central assumption of SIT is that aggression is instrumental, mediated by social contexts, and where estimated costs are outweighed by greater perceived social rewards (Tedeschi & Felson, 1994). According to the Theory of Planned Behaviour (Ajzen, 1991), *intentions* are the strongest predictor of behavioural outcome (i.e. in this instance aggression), and are determined by personal attitudes, subjective norms, level of perceived behavioural control, and self-efficacy, which may inhibit or facilitate the behaviour (Ajzen, 1991). Therefore, the role of reasoned decision making becomes important elements to consider (Ireland, 2018; Raine *et al.*, 2006), along with those factors that could impact on this, such as developmental and cognitive variables.

The notion that aggression can be driven by differing underlying motives and rewards (Ireland, 2018; Ohlsson & Ireland, 2011; Raine *et al.*, 2006), implies that the cognitive processes and developmental influences should be distinct. In line with this, developmental differences between aggressors have been acknowledged (Vitaro & Brendgen, 2005; Tremblay, 2018). Dodge (1991) described the *parallel model* where both proactive and reactive aggression originate from different early socialisation

experiences and develop independently from one another. Reactive aggression is said to be the product of threatening, unpredictable and/or abusive parental practice, whereas proactive aggression is the result of more supportive but overly-permissive environments, but ones that foster the use of aggression to achieve goals. Empirical research with children, adolescents (Day, Bream & Paul, 1992; Little *et al*, 2003; Poulin & Boivin, 2000; Vitaro & Brendgen, 2005) and adults (Dodge *et al.*, 1997) supports these assertions. More recent research has also commented on socialisation as a key variable beyond the potential for some shared environmental factors (Paquin *et al*, 2017). An alternative perspective to the parallel model was proposed by Vitaro and Brendgen (2005), namely the *sequential pathway* model where it is argued that underpinning all proactive aggressors is an earlier reactive-aggression history. There is some evidential support for this model (see Vitaro & Brendgen, 2005).

In addition, there is some recognition of the role of early attachments, with peers and/or parents as a direct or indirect influence on aggression risk, which again points towards developmental pathways (You & Kim, 2016). However, attachment research is limited in this area and there is increasing evidence that we need to accommodate more for factors directly and indirectly impacting. Indeed, the concept of developmental pathways to aggression is not only accepted but is broadening between these two rather crude parallel/sequential pathways (Buil *et al*, 2017), with more attention being given to indirect pathways and influencing factors. However, this development in academic enquiry has not yet reached the forensic research domain.

Returning to a role for attachment, this is thought to influence the development of internal cognitive structures, which influence subsequent functioning (Sigel, 1999, 2001). Thus, the role of cognition becomes unavoidable linked to development. Social-cognitive research focused on aggression has incorporated cognitive mechanisms that bias perceptions, in particular, hostile attributions (Verhoef, Alsem, Verhulp & De Castro, 2019). An individual's *normative beliefs* are a further good example; these relate to an individual's cognitions about the acceptability or unacceptability of behaviour (e.g. Li *et al*, 2015; Huesmann & Guerra, 1997). Such beliefs have been associated with aggression (e.g. Bushman & Huesmann, 2001; Li *et al*, 2015) and are considered important to the decision-making processes underlying aggression motivation (Ireland, 2018). Cognitive schemas are of equal importance to this process and are described as pervasive cognitive structures, which develop from childhood that result in dysfunctional thinking patterns that influence social functioning (Young, Klosko, & Weishaar, 2003). They have been increasingly linked to raised levels of aggression, including in more applied populations (Shorey, Elmquist, Anderson & Stuart, 2015; Dunne, Gilbert, Daffern & Lee, 2018), although the amount of research remains limited. There is no research to date that has attempted to associate cognitive schemas and normative beliefs to aggression motivation in applied samples. Indeed, there are few published studies exploring aggression motivation in extreme populations, such as forensic samples, which is surprising since

raised levels of aggression are evident, highlighting a need for research (Watt & Howells, 1999; Lewis & Ireland, 2019; Ohlsson & Ireland, 2011).

The current study aims to add to the existing literature by exploring the components of aggression motivation with regards to developmental and cognitive factors. It aims to investigate differences and develop distinct cognitive and developmental markers for reactive, proactive, and mixed motive aggression in an adult male prisoner sample. It was predicted that, (1) The multi-component nature of aggression motivation will be replicated (Ohlsson & Ireland, 2011); (2) Reactive aggressors will report more disciplinarian parenting practices than proactive aggressors (Dodge *et al.*, 1997); (3) Proactive aggressors will report more permissive parental practises than reactive aggressors (e.g. Poulin & Boivin, 2000); (4) Attachment pattern will be positively correlated with aggression (You & Kim, 2016); (5) Each type of aggressor will have distinct maladaptive schemas due to inherent differences in their developmental history and socio-cognitive functioning (Young *et al.*, 2003; Dunne *et al.*, 2015); and (6) Normative beliefs will be associated with aggression (e.g. Bushman & Huesmann, 2001; Li *et al.*, 2015).

Method

Participants

All prisoners sampled were from a category C (medium security) training prison in the UK. A total of 565 questionnaires were distributed to adult male prisoners, with 233 returned. Nineteen cases were removed due to missing values, with four removed as they were multivariate outliers. This resulted in a final sample of 210 (final inclusion rate of 37.2 percent).

Of the 210 participants, 48 were aged under 25 (22.9 percent), 63 between 26 and 35 (30 percent), 44 between 36 and 45 (21 percent), and 55 were over 46 years of age (26.1 percent). Forty-eight percent of participants had under five previous convictions (101 participants), 21 percent had between five and ten previous convictions (45 participants), and 31 percent had over ten previous convictions (64 participants). Eighty-six participants were currently serving a sentence for a violent offence (41 percent), with 48 percent of participants reporting a prior conviction for a violent offence (100).

Measures

Each participant completed the following measures;

Aggression Motivation Questionnaire (AMQ-II: Ireland & Ohlsson, 2011). This is a 46 item self-report questionnaire that asks participants to rate the degree of relevance to them of a set of statements. Statements included, 'I enjoy seeing people suffer', 'I have had to defend myself', and 'I wanted revenge'. These items were devised following a review of the aggression literature. Participants were asked to score on a Likert scale

ranging from 1 = totally disagree through to 5 = totally agree. For the current study the measure was slightly revised from previous research (Ohlsson & Ireland, 2011). The revision included detailing the three main aggression types (i.e. proactive, reactive, and mixed motive) and asking participants to rate the degree to which each type best described their aggression motivation.

The Schema Positive Negative and Affect Scale (SPANAS; Wilks-Riley & Ireland, 2012) is a sixty five item self-report questionnaire used to assess recent adaptive and maladaptive schema about the self and others. Statements included, 'I get on well with others', 'Other people are a pain', 'I am suspicious of others', and 'I am a worthless person'. Participants rated the relevance of each statement on a Likert scale ranging from 1 = strongly disagree through to 5 = strongly agree. It examined six adaptive schemas (i.e. happy/sociable, hardworking, calm/controlled, caring, easy going, and worthwhile), and seven maladaptive schemas (i.e. abandoned, mistrustful self/distrustful others, worthless, uncaring others, abusive others, intolerant of others, and affect).

The Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991) to assess participant's attachment style. It comprises four items detailing the main attachment styles (i.e. secure, fearful-avoidant, preoccupied, and dismissing-avoidant) and asks participants to rate the degree that each style best describes them. Participants were instructed to complete this twice; one representing childhood attachment and one for their more recent adult attachment.

The Aggression Developmental History Questionnaire (ADHQ; Ohlsson, 2016) comprises five main subscales; positive parenting, negative parenting, positive childhood experiences, negative childhood experiences, and problematic childhood behaviours. Items from the positive parenting subscale included, 'When you were younger how much of the following did your parents/guardians give you: encouragement, guidance, support, stability, praise?' Examples from the negative parenting subscale included, 'When you were younger did your parents/guardians ever: - smack you with an open hand or slipper, punch or thump you, hit you with an object such as a stick or belt?' The positive childhood experiences subscale included questions on friendships and the degree of happiness felt in childhood. The negative childhood experiences subscale examined issues such as the degree of sadness felt in childhood, neglect, physical and sexual abuse. The problematic childhood subscale examined potential indices of childhood maladjustment including expulsion from school, destruction of objects or property, physical violence, involvement in crime, hurting animals, and use of substances. Participants rated the presence or absence of items, or selected one of several multiple-choice responses, to indicate the relevance of each statement.

Adult Aggression Normative Belief Scale (AANBS; Ohlsson, 2016). This 10 item

self-report measure asked participants to rate the acceptability of several normative aggression statements. Statements included, ‘Other prisoners would expect me to hit someone if they hit me first’, ‘Other prisoners would expect me to be aggressive towards staff’, ‘Other prisoners would expect me to put on “a front” and pretend to be tougher than I am.’ These items were devised following a review of the aggression literature. Participants were asked to score on a likert scale ranging from 1 = not at all through to 5 = definitely.

Procedure

Ethical approval was obtained from a university ethics committee and from the research coordinator at the prison. Participants were informed that the research was anonymous and that their individual responses would be reported only as part of group data. Prisoners completed questionnaires in their cell, over the lunch hour, to aid privacy and protection of responses. These were distributed as they collected their meals, and collected either when prisoners were unlocked after lunch, or via prisoners’ posting them under their door during the lunch hour for collection by the researcher. An envelope was provided for all completed questionnaires to be returned.

Results

Data screening

Missing data was replaced once it was determined that it was randomly missing. All values (means, correlations, and covariances) were missing at random (Little’s Chi-square [1, n=210] = 2.79, $p > .05$). Multivariate outlier checks were also calculated using Mahalanobis distance and resulted in the removal of four cases. The data screening process resulted in a final total of 210 cases.

Exploratory factor analysis of Aggression Motivation Questionnaire II

The AMQ-II items were subjected to a Principal Component Analysis (PCA) with orthogonal rotation, as it was considered possible that variables would correlate. The Kaiser-Meyer-Olkin value was .94 and Bartlett’s Test of Sphericity reached statistical significance, supporting the factorability of the correlational matrix. Parallel Analysis was utilised for factor restriction, leading to three factors extracted with item loadings above .40 retained. The three factors produced were: ‘Pleasure’ (F1); ‘Protection’ (F2); and ‘Positive social outcome’ (F3). These are illustrated along with variance contribution and alpha values in Table 1.

Table 1. *Exploratory factor analysis of AMQ II.*

Factor 1 (43.4% variance). Pleasure aggression motive	Factor loading	AMQ II item no
I have been fantasising about using aggression	.70	46
I wanted to release feelings of guilt or shame	.68	24
I have been responding to a mental illness	.67	30
It is the only way I have of managing conflict with others	.65	31
I have thoughts telling me to hurt others that won't go away	.64	45
I enjoy seeing other people suffer	.64	10
I have just been behaving in a way that others have told me to	.63	9
My personality makes it more likely that I will be aggressive	.63	16
I wanted to release feelings of jealousy	.62	23
I was trying to cope with my difficulties	.61	33
I believed the victim was going to be an 'easy target'	.59	27
I wanted to be disruptive	.58	17
I wanted some fun and enjoyment	.56	20
I wanted to dominate or control others	.53	36
I wanted to stop feeling alone	.52	14
I wanted to let others know that I am angry or frustrated	.51	40
I thought there would be few or no consequences	.46	18
I have wanted to humiliate the victim	.46	44
Factor 2 (8.5% variance). Protection aggression motive	Factor loading	AMQ II item no
I have wanted to protect myself	.80	37
I have had to defend myself	.77	19
I have been provoked by another	.75	39
I was trying to protect others	.74	34
I wanted to let others know I'm not an 'easy target'	.69	32
I wanted revenge	.66	21
I wanted to assault someone before they assaulted me	.65	38
I was reacting to another person making fun of me	.65	22
I wanted to 'win' the argument or conflict	.59	41
I used it to release anger, frustration or tension	.58	5
I wanted to punish others who were 'getting at me'	.55	12
I was feeling fearful/afraid	.55	25
The environment I am in makes me aggressive	.53	11
I believe the world is a dangerous place and others will try to harm me	.49	15
I have believed that others are 'out to get me'	.46	43

Factor 3 (4.6 % variance). Positive social outcome aggression motive	Factor loading	AMQ II item no
I wanted to gain a reputation	.76	28
I wanted to impress groups of peers and be accepted by them	.75	35
It has helped me to increase my status my peers	.70	8
I wanted to maintain the status I already have	.68	13
I wanted to ‘prove’ myself to my peers	.64	26
I believed it would have a positive outcome for me	.61	1
I am just behaving in a way that has worked for in me in the past	.61	2
I have used it make others do what I want	.59	4
It has been a way I can obtain items from others	.56	7
I have used it to protect my self-esteem	.55	3
I have used it to avoid doing something I did not want to do	.47	29
It has been a way of making sure others avoid me	.46	6
I want to stop others from gaining status	.45	42

Further exploration of development and cognitive variables

As part of the AMQ-II, participants indicated whether their aggression reflected proactive, reactive, or mixed motive aggression. Responses were utilised as the grouping variable to explore further hypotheses. Forty seven participants reported mostly proactive motives (22.4 percent), fifty six mainly reactive motives (26.6 percent), and one hundred and seven mixed motives (51 percent). Descriptive statistics and internal consistency coefficients (Cronbach’s alpha) for all participants and measures are presented in Table 2.

Table 2. *Mean scores for all measures by aggression type.*

	Alpha	Overall (n = 210)		Proactive (n = 47)		Reactive (n = 56)		Mixed motive (n = 107)	
<u>ADHQ</u>		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Positive parenting	.90	3.65	2.20	3.85	2.13	3.39	2.21	3.70	2.20
Negative parenting	.72	6.47	3.20	6.11	3.07	6.59	3.07	6.56	3.30
Positive childhood experiences	.70	4.11	1.50	3.55	1.50	3.89	1.49	4.48*	1.43
Negative childhood experiences	.51	5.63	1.34	5.60	1.48	5.43	1.37	5.76	1.26
Problematic childhood behaviour	.87	6.98	3.00	7.60	2.58	8.13*	2.58	6.11	3.13
<u>AANBS</u>		<i>M</i>	<i>SD</i>						

Normative aggression beliefs	.91	13.33	9.76	9.68	9.81	13.63	9.67	14.78*	9.47
<u>SPANA</u>		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Happy/Sociable (+’ve)	.77	10.55	3.49	10.53	3.46	9.96	3.81	10.86	3.32
Hardworking (+’ve)	.79	8.82	3.44	8.79	3.38	8.21	3.47	9.16	3.44
Calm/Controlled (+’ve)	.76	11.09	3.82	10.60	4.04	10.54	3.71	11.60	4.74
Caring (+’ve)	.79	9.01	3.31	8.49	3.08	8.59	3.61	9.46	3.20
Easy going (+’ve)	.73	11.17	3.65	11.55	3.49	11.36	3.93	10.91	3.58
Worthwhile (+’ve)	.75	10.09	3.63	9.51	3.75	10.04	4.05	10.36	3.34
Abandoned (-’ve)	.85	12.71	4.95	13.5**	5.75	11.36	4.91	13.07	4.47
Mistrust self/Distrust others (-’ve)	.82	14.80	4.42	14.77	5.21	15.5**	4.22	13.48	4.01
Worthless (-’ve)	.77	10.44	4.30	11.04	5.15	9.87	3.88	10.47	4.09
Uncaring others (-’ve)	.79	13.00	3.85	13.23	4.37	11.68	3.83	13.59*	3.46
Abusive others (-’ve)	.83	13.42	3.83	13.21	3.96	12.09	3.64	14.21*	3.70
Intolerant others (-’ve)	.82	13.15	4.11	12.66	4.23	11.38	3.96	14.30*	3.78
Negative Affect (-’ve)	.60	11.90	3.25	11.64	3.68	11.05	2.93	12.5**	3.12
<u>AMQ II (motivation)</u>		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Pleasure	.94	33.48	15.27	33.40	15.1	29.75	14.3	35.46	15.6
Protection	.93	39.88	15.38	33.64	14.2	33.23	15.3	44.78	14.3
Positive social outcome	.94	27.18	12.30	26.43	12.3	22.59	12.0	29.92	11.8
<u>RQ (attachment - childhood)</u>		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Secure		.31	.46	.43	.50	.29	.46	.27	.45
Fearful		.28	.49	.13	.33	.32*	.47	.32*	.47
Preoccupied		.13	.34	.09	.28	.13	.33	.15	.36
Dismissing		.29	.45	.36	.49	.27	.44	.26	.44
<u>RQ (attachment - adulthood)</u>		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Secure		.33	.47	.36	.49	.32	.47	.32	.47
Fearful		.24	.43	.17	.38	.32	.47	.22	.42
Preoccupied		.13	.34	.09	.28	.11	.31	.16	.37
Dismissing		.30	.46	.38	.28	.25	.44	.30	.46

$p < .05$ ** $p < .01$ *

A series of analyses of variance were completed to examine differences between aggressors, and to explore the possibility of distinct cognitive and developmental profiles for each type (i.e. proactive, reactive, mixed motive). A multivariate analysis of covariance was performed to examine developmental differences between types of aggressors. The results were as follows:

Developmental history and attachment

There was a significant difference between aggressors on the combined developmental history variables (*Wilks' Lambda* = 0.81, $F(10,398) = 4.37$, $p < .01$). This suggests that on an aggregated variable, which includes parenting practices, childhood experiences, and childhood behaviour, there were distinct developmental differences between aggressors.

A logical next step was to investigate the unique differences between aggressors on individual subscales and items. When considered separately, significant differences were established. The positive childhood experiences subscale was found significantly different ($F(2,210) = 6.64$, $p < .01$, partial eta squared = .06), with mixed-motive aggressors reporting happier childhood experiences, with more friends, than either proactive or reactive aggressors. In terms of parenting practices, no significant differences were established at the subscale level although they were at the individual level. These are presented in Table 3.

Table 3. *Mean scores for individual items of the ADHQ by aggression type.*

	Overall (n = 210)		Proactive (n = 47)		Reactive (n = 56)		Mixed motive (n = 107)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Positive parenting								
Encouragement	1.30	.76	1.53	.75	1.21	.80	1.24	.74
Advice	1.30	.74	1.51	.66	1.25	.77	1.23	.76
Support	1.34	.76	1.57	.68	1.25	.84	1.29	.74
Routine	1.43	.72	1.60*	.65	1.54	.66	1.30	.77
Praise	1.10	.77	1.34*	.76	1.09	.79	.99	.76
Rules	1.30	.68	1.32	.63	1.23	.738	1.34	.67
Negative parenting								
Smacking	1.16	.73	1.11	.63	1.14	.80	1.20	.74
Punching/thumping	.49	.75	.30	.59	.43	.78	.60	.76
Hit with object	.70	.80	.49	.72	.84	.83	.72	.80
Positive childhood experiences								
Happy	2.57	.93	2.83	.99	2.45	.81	2.51	.94

Friendships	1.55	.91	1.72	.85	1.34	.90	1.58	.92
Negative childhood experiences								
Sadness	1.75	.89	1.51	1.02	1.77	.79	1.84	.86
Physical abuse	.74	.44	.81	.40	.71	.46	.72	.45
Sexual abuse	.80	.40	.89	.31	.75	.44	.78	.42
Emotional abuse	.76	.43	.83	.38	.71	.46	.75	.44
Physical neglect	.86	.35	.94	.25	.82	.39	.85	.36
Emotional neglect	.73	.45	.85	.42	.70	.645	.70	.46
Problematic childhood behaviour								
Fighting	.45	.50	.60	.50	.41	.50	.41	.49
Bully other children	.83	.38	.74	.15	.88	.33	.98**	.44
Act aggressively	.61	.49	.49	.41	.79**	.46	.70	.50
Crime/s with peers	.69	.46	.62	.40	.73	.45	.81*	.49
Use alcohol/drugs	.79	.41	.87	.34	.79	.41	.75	.44
Steal things	.52	.50	.64	.49	.46	.50	.50	.50
Expelled from school	.81	.39	.87	.34	.80	.40	.79	.41
Fire setting	.73	.45	.65	.31	.73	.45	.89**	.48
Hurt animals	.87	.34	.94	.25	.91	.29	.82	.38
Destroy property	.69	.47	.61	.34	.87**	.47	.68	.49

$p < .05$ ** $p < .01$ *

Proactive aggressors reported greater levels of routine ($F(2,210) = 3.74, p < .05$, partial eta squared = .04), and praise ($F(2,210) = 3.39, p < .05$, partial eta squared = .03) from parents/guardians than either reactive or mixed motive aggressors. The problematic childhood behaviours subscale also noted differences, with reactive aggressors reporting more of such behaviours than either proactive or mixed-motive aggressors ($F(2,210) = 8.99, p < .01$, partial eta squared = .08). At the individual item level, reactive aggressors reported higher frequencies of acting aggressively towards others ($F(2,210) = 7.89, p < .01$, partial eta squared = .07) and destroying property ($F(2,210) = 5.53, p < .01$, partial eta squared = .05) than either proactive or mixed aggression types. Mixed motive aggressors reported more bullying of other children ($F(2,210) = 7.65, p < .01$, partial eta squared = .07), committing crime/s with peers ($F(2,210) = 3.17, p < .05$, partial eta squared = .03), and engaging in fire setting ($F(2,210) = 3.39, p < .05$, partial eta squared = .05) than either proactive or reactive aggressor. Reactive and mixed motive aggressors also reported higher rates of fearful avoidant childhood attachment than proactive aggressors ($F(2,202) = 3.29, p < .05$) (see Table 2).

Cognition I: Normative beliefs

A difference was found between aggressors concerning overall belief number (*Wilks' Lambda* = 0.94, $F(4,404) = 3.35$, $p < .05$), with mixed motive aggressors holding more normative beliefs supporting aggression than either reactive or proactive aggressors. Analyses of individual items, found that reactive aggressors held beliefs that they 'needed to get into a physical fight to show aggression' to a greater extent than other aggressors ($F(2,210) = 3.75$, $p < .05$, partial eta squared = .04). Similarly, mixed motive aggressors were more likely than proactive or reactive alone to report needing to be aggressive towards other prisoners ($F(2,210) = 3.59$, $p < .05$, partial eta squared = .03), to be aggressive when angry ($F(2,210) = 6.88$, $p < .01$, partial eta squared = .06), and to be aggressive when someone was aggressive towards them ($F(2,210) = 4.09$, $p < .05$, partial eta squared = .04).

Cognition II: Schemata

When results for each schema were considered individually across aggression group, no significant differences were found between aggressors in terms of adaptive schemas (all $F \geq 2.04$ ns). However, several differences on maladaptive schemas were established. Proactive aggressors were found to have higher scores on the abandonment schema ($F(2,204) = 4.50$, $p < .05$), with reactive aggressors presenting with higher scores on the distrustful self/mistrustful others schema ($F(2,204) = 4.60$, $p < .05$). Mixed motive aggressors were found to have higher scores on the uncaring others schema ($F(2,204) = 5.96$, $p < .01$), the abusive others schema ($F(2,204) = 8.00$, $p < .01$), the intolerant others schema ($F(2,204) = 9.42$, $p < .01$) and the affect schema ($F(2,204) = 4.02$, $p < .05$).

Discussion

Consistent with previous research (Ohlsson & Ireland, 2011; Runions *et al.*, 2018) aggression motivation was found to comprise several factors, which supported the prediction that motivation would be multi-faceted. Developmental and socio-cognitive differences were also established between aggressor types. Regarding aggression motives, the current study did not firmly establish the same components as identified previously with prisoners (Ohlsson & Ireland, 2011) but did identify three core motivations; pleasure, protection, and positive social outcome.

Parallels can be drawn to the previous four factor model outlined with prisoners (Ohlsson & Ireland, 2011) and the reported literature on the reactive/proactive distinction (Raine *et al.*, 2006; Ireland, 2018). A protection motive was consistently identified, with items reflecting a generalised incentive to use aggression for protection of the self and others. This also shared some similarities to the motivation of revenge described by Runions *et al.* (2018) in a general student sample, although seemed broader. The positive social outcome motive identified in the current study was reflective of an amalgamation of two previous identified motives; namely social recognition and positive outcome

(Ohlsson & Ireland, 2011). It emphasised deliberate, planned, or organised action in the pursuit of purposeful rewards. Again, it also shared similarities to the recognition and reward components outlined by Runions *et al* (2018) in their general sample. However, what appeared more unique to the current sample was the pleasure aggression motive, highlighting a difference perhaps between forensic and general samples.

Exploring and distinguishing aggressors using motivation is important (Ohlsson & Ireland, 2011). It provides the opportunity to examine individual, situational, and social level factors on behavioural decision making, a practise embedded within the principles of *decision theories*, which argue aggression as driven by reasoned decision making (Tedeschi & Felson, 1994; Ajzen, 1991). The decision to explore a range of motives using the AMQ-II, and examining this alongside developmental and cognitive factors, revealed interesting results. Contrary to expectation, no significant differences were found between parental practice and reactive aggressors (Vitaro & Brendgen, 2006). Proactive types, however, reported greater stability, and praise, thereby providing support for the *sequential* model of parental reinforcement to aggression use as a method of achieving desired goals (Dodge, 1991). However, the current study highlights inconsistent support for these models and suggests the need to expand both parallel and sequential developmental beyond a simplistic child-parental dynamic. Currently within these models limited attention is given to the relationship between developmental experiences and socio-cognitive processes, such as a child's *interpretation* of salient experiences, which may provide valuable information to assist our understanding of the aetiology of aggression. In addition, the research field is evolving in terms of developing further pathways that account for indirect and direct influences on aggression development (Buil *et al*, 2017). The current study suggests that such advancements would be of value to apply to forensic groups.

Furthermore, current developmental models are silent in relation to the aetiology of mixed motive aggression. In the current study this group reported *overall* happier childhood experiences, greater numbers of social peers, although were more likely to engage in bullying, commit crimes with peers, and engage in fire setting. These findings may explain their diverse use of aggression and could point to maladaptive personality perhaps being a key issue. The current authors would propose a *Simultaneous Developmental Model* where exposure to differing aetiological factors simultaneously promotes equal vulnerability for the subsequent manifestation of *both* reactive and proactive aggression. Given the novel nature of this finding such conclusions are speculative, with replication required to validate it. Nonetheless, it identifies the importance of exploring pathways to aggression and other concepts likely to be associated and leading to a diverse (mixed motive) use of aggression, such as personality traits including clinical psychopathy (Raine *et al.*, 2006; Thomson & Centifanti, 2018).

Reactive aggressors were found to report more problematic childhood behaviours than other types. Particular markers for adult reactive aggression included early

behavioural aggression towards others and property destruction. This is consistent with prior research, which asserts that reactive child aggressors have greater developmental adjustment difficulties (Little *et al.*, 2003), higher rates of internalised psychopathology (Day *et al.*, 1992; Vitaro & Brendgen, 2005), and temperamental vulnerabilities that predispose and influence subsequent adult functioning (Vitaro & Bredgen, 2005). However, to date limited research has examined temperamental vulnerabilities amongst adult male forensic aggressors; an avenue the current study suggests is worthy of greater empirical attention. In keeping with more recent advancements in the literature, such research should be encouraged to consider socialisation as a feature as opposed to a simple consideration of shared environmental markers (Paquin *et al.*, 2017).

As predicted, differences were found in attachment styles. Reactive and mixed types reported higher rates of fearful-avoidant childhood attachments than proactive. This style is characterised by discomfort with emotional closeness, difficulties in trusting others, highly fearful of abandonment and rejection in close relationships, and likely to result in superficial relationships with others. Again, this could point to maladaptive personality, such a psychopathy, representing an important variable of interest to consider (Thomson & Centifanti, 2018). There is a further novel finding when normative beliefs are considered. Mixed motive aggressors were found to be more approving of aggression than other types and held stronger beliefs on the need to be aggressive towards others or to show aggression as a *response* to aggression. They are also in keeping with the Theory of Planned Behaviour (TPB: Ajzen, 1991), particularly the *attitudes towards behaviour* element, which refers to the degree of behaviour favourability (Ajzen, 1991). Although, it remains unclear why these beliefs are prominent for mixed types, it may be that a variety of mixed motives require an equivocal number of normative beliefs to justify and support the varying displays of aggression. Such an interpretation is in keeping with the position emphasised by Huesmann and Guerra (1997) and, again, points to additional complexity emerging with the mixed-motive group.

Early maladaptive schemas also revealed some interesting differences between aggressors. The *abandonment schema* was found to be significantly higher among proactive types, suggesting greater cognitive perceptions of instability and unreliability of others for support and connection. In terms of aggression, this has parallels with Social Interactionist Theory (SIT: Tedeschi & Felson, 1994), where the functions of aggression include to control others, to establish justice, and to protect or restore self-esteem. This finding also suggests an additional function, namely aggression in response to perceived desertion/abandonment by others. A *mistrustful schema* was higher among reactive aggressors. There is an established link between a hostile attribution style and aggression, at least when there is an emotional influence (Lee *et al.*, 2015), such as a negative emotional reaction. The current findings seem to fit with the general notion of hostile attributions having relevance, where possible underlying mistrustful schemas may result in more hostile perceptions and misattributions. It also provides insight into the internal

cognitive mechanisms that may underlie retaliatory reactive aggression, particularly in response to perceive provocations. Several maladaptive schemas were higher among mixed types. First, the *affect* schema, which relates to an inability to recognise and regulate emotions. Links between this and aggression have been well established (Ireland, 2018). However, it is unclear as to why mixed motive aggressors scored higher on this schema than the reactive group and is worthy of further exploration. Differences found in other schemas, included *uncaring others*, *abusive others*, and *intolerant others*, and appear to reflect generalised cognitions about others, which may result in interpersonal difficulties and/or empathy deficits. These schemas could have developed in response to challenging developmental experiences, such as those indicated by the current study. They could also reflect differences in inherent personality traits (Raine *et al.*, 2006; Thomson & Centifanti, 2018). This is yet to be conceptually or empirically examined, and although preliminary this study illustrates the need for further explicit exploration of mixed type aggressors.

The current study is not without its limitations. A reliance on self-report measures is clearly open to difficulties of dishonesty and desirable responding. This is, nevertheless, a preferred option if participant anonymity is to be protected. Second, the retrospective nature of some measures may be open to certain memory recall biases (Walker, Skowronski, & Thompson, 2002; Nelson, 1993). The current study does, nonetheless, provide valuable findings, highlighting that there are distinct components to aggression motivation and offering a cognitive and developmental profile of reactive, proactive and mixed motive aggressors. It highlights the value of recognising the cross-over in aggression motivation as opposed to utilising a dichotomous approach.

Future research could examine the applicability of the aggression motivations reported here to other forensic and non-forensic populations, to aid with replication. This could extend to capture the developmental and socio-cognitive concepts considered, perhaps with an aim of exploring further development of the *Simultaneous Developmental Model* of aggression proposed here in brief. It would also be valuable to explore if these concepts are linked with other variables, known to be associated with a willingness to use different forms of aggression, such as personality and psychopathy (Raine *et al.*, 2006; Thomson & Centifanti, 2018), raised tendency towards a hostile attribution bias (Verhoef *et al.*, 2019), and schema modes, in order to capture emotion more thoroughly in our explorations (Dunne *et al.*, 2018).

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